

WHAT IS CLAIMED IS:

1. A swing-type display device for, when swung,
displaying an image in a trajectory of the swing by utilizing
5 persistence of vision, comprising:

a linear array of first light-emitting elements capable
of emitting light in a predetermined color, the linear array
extending in a direction substantially perpendicular to the
direction of the swing;

10 a linear array of second light-emitting elements capable
of emitting light in a color which is different from the
predetermined color, the first light-emitting elements and the
second light-emitting elements being arranged in pairs of two,
such that each second light-emitting element is disposed near a
15 corresponding one of the first light-emitting elements; and

a control section for activating each of the first and
second light-emitting elements for a predetermined period to emit
light in a luminance level in accordance with image data, thereby
displaying an image corresponding to the image data in the
20 trajectory of the swing.

2. The swing-type display device according to claim 1,
wherein the predetermined period is equal to a period for displaying
a single pixel of the image.

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3. The swing-type display device according to claim 1,
wherein the first and second light-emitting elements of each pair
are located side by side in the direction of the swing.

5 4. The swing-type display device according to claim 1,
further comprising an optical guide composed of a
light-transmitting material, the optical guide covering
light-emitting surfaces of the first and second light-emitting
elements and allowing the light emitted from the light-emitting
10 surfaces of the first and second light-emitting elements to
propagate therethrough to outside of the swing-type display device,
wherein,

the optical guide includes a first face opposing the
light-emitting surfaces of the first and second light-emitting
15 elements, and a second face opposite from the first face, the second
face being mat-finished to diffuse the light propagating through
the optical guide.

5. The swing-type display device according to claim 4,
20 wherein a groove is formed on the first face of the optical guide,
in a position opposing each of boundaries between adjacent pairs
of first and second light-emitting elements.

6. The swing-type display device according to claim 1,
25 wherein,

the control section is operable to drive each of the first and second light-emitting elements for the predetermined period by a PWM technique using a pulse having a frequency based on the image data, and

5 the frequency takes at least two values in accordance with the image data.

7. The swing-type display device according to claim 1, wherein,

10 the control section is operable to drive each of the first and second light-emitting elements for the predetermined period with a current or voltage based on the image data, and the current or voltage takes at least two values in accordance with the image data.

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8. The swing-type display device according to claim 1, further comprising a tilt sensor for detecting a tilt of the swing-type display device,

wherein,

20 the tilt sensor includes a ball which is capable of reciprocating between a first position and a second position in synchronization with the swing of the swing-type display device, and

the control section is operable to begin activating each
25 of the first and second light-emitting elements each time the ball

is moved out of the first or second position.

9. The swing-type display device according to claim 3,
wherein the control section is operable to control one of the first
5 and second light-emitting elements of each pair that is located
more to a rear along the direction of the swing of the swing-type
display device to be activated a predetermined time later than
the other light-emitting element which is located more to a front
along the direction of the swing of the swing-type display device.

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10. A swing-type display device for, when swung,
displaying an image in a trajectory of the swing by utilizing
persistence of vision, comprising:

a linear array of light-emitting elements, the linear
15 array extending in a direction substantially perpendicular to the
direction of the swing;

a control section for activating each of the
light-emitting elements for a predetermined period to emit light
in a luminance level in accordance with image data, thereby
20 displaying an image corresponding to the image data in the
trajectory of the swing;

partitions, each provided between adjacent ones of the
light-emitting elements, for restricting directions of light
outputted from light-emitting surfaces of the light-emitting
25 elements; and

a covering member provided to cover the light-emitting elements and the partitions, the covering member being composed of a light-transmitting material,

wherein,

5 the covering member includes a first face opposing the light-emitting surfaces of the light-emitting elements, and a second face opposite from the first face, and

 the swing-type display device further comprises a plurality of convex portions formed on at least one of the first and second faces, each shaped as a ridge extending along the direction of the swing.

11. The swing-type display device according to claim 10, wherein the convex portion has a lenticular-lens-like or wedge-like configuration.

12. The swing-type display device according to claim 11, wherein a plurality of said partitions are formed in a light-emitting area on the second face which is attributable to each of the light-emitting elements.

13. The swing-type display device according to claim 10, wherein, the convex portions are formed on the first face, and the covering member is disposed so as to leave a

predetermined space from the partitions.

14. The swing-type display device according to claim 13,
wherein the covering members are formed at least on portions of
5 the first face opposing the partitions.

15. The swing-type display device according to claim 10,
wherein the predetermined period is equal to a period for displaying
a single pixel of the image.

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16. The swing-type display device according to claim 10,
wherein,

the control section is operable to drive each of the
light-emitting elements for the predetermined period by a PWM
15 technique using a pulse having a frequency based on the image data,
and

the frequency takes at least three values in accordance
with the image data.

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17. The swing-type display device according to claim 10,
wherein,

the control section is operable to drive each of the
light-emitting elements for the predetermined period with a current
or voltage based on the image data, and

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the current or voltage takes at least three values in

accordance with the image data.

18. The swing-type display device according to claim 10,
further comprising a tilt sensor for detecting a tilt of the
5 swing-type display device,

wherein,

the tilt sensor includes a ball which is capable of
reciprocating between a first position and a second position in
synchronization with the swing of the swing-type display device,
10 and

the control section is operable to begin activating each
of the light-emitting elements each time the ball is moved out
of the first or second position.